

**Nevada Environmental Response Trust's Response to Metropolitan Water District
of Southern California's Comments on Weir Dewatering Treatment
Engineering Evaluation/Cost Analysis
November 1, 2016**

The Trust responses are provided in italics below each comment:

1. Metropolitan supports this effort to minimize additional loading of perchlorate into Las Vegas Wash by treating dewatered groundwater during the Sunrise Mountain and Historic Lateral weir construction period. Given the high capital costs for either treatment approach described in the EE/CA, we believe additional long-term uses and benefits should be considered and identified in the EE/CA to help determine the most cost-effective overall approach. The best solution for a 6- to 12-month weir dewatering period may not necessarily be the optimal solution when considering other potential uses of the treatment system, either during and/or following the weir construction period.

Response: *As required by NDEP's Finding and Order Requiring Engineering Evaluation/Cost Analysis (EE/CA) ("Order"), NERT prepared the EE/CA to identify a recommended alternative to mitigate and abate substantial hazards to public health related to the weir construction dewatering activities. An EE/CA is performed for a non-time critical removal action and contains a recommended alternative that must address the identified hazard to public health. While NERT appreciates the significant costs of this project, an EE/CA does not include an analysis of the selected alternative for other purposes. That said, NERT is working hard to deliver a solution that satisfies the requirements of the Order while minimizing costs. Furthermore, and to the extent possible, it will be the intent of NERT to repurpose any equipment purchased as part of the weir treatment project through integration, if possible, into NERT's RI/FS and related remedy. While outside the scope of the EE/CA, the Trust will also explore various procurement and cost savings scenarios, including rental of key equipment, in an effort to lessen the high capital cost.*

2. Can the proposed treatment system be utilized to receive seep area flows, which could eliminate the need for the proposed GWETS IX treatment system (also constructed at Lift Station 1) intended to reduce GW-11 levels?

Response: *NERT has already begun the GWETS IX Treatment System construction project at Lift Station 1. Regardless, given the competing needs for water treatment, the difference in project status and schedule, the treatment footprint requirements, and the immediate need for improved water handling capacity to deal with the ever increasing water levels in GW-11, NERT does not believe it is possible to merge these two projects.*

3. Has continued operation of a treatment system as an interim measure (and potentially for a longer-term measure) been considered while development of a long-term remedy is underway?

Response: *As indicated above, NERT's proposed treatment system is in response to the Order and an EE/CA does not allow for consideration of specific future needs outside the abatement of the threat. That said, NERT will certainly consider opportunities to repurpose the treatment system as part of the RI/FS process. It should also be noted that the IX system currently being deployed by NERT outside the scope of this EE/CA will continue to be operated for the foreseeable future assuming budgetary authorization is provided by NDEP to do so.*

4. Additional purposes for this large capital investment should be explored. Although that may seem outside the scope of this EE/CA, these other uses could potentially advise or alter the recommended treatment approach and get us the most bang for the buck.

Response: *NERT will definitely consider reuse of the treatment system as part of the RI/FS process. The EE/CA was prepared to address the Order and to meet the current project schedule for the weir construction project (which NERT does not control). The recommended alternative identified in the EE/CA meets those objectives.*

5. The EE/CA finds that biological treatment does not meet the effectiveness and implementability criteria since the biological reactors would not be effective under no-flow conditions. The solution that was evaluated involves constructing a 10-million gallon equalization tank to balance flowrates. The EE/CA indicates that the \$8 million equalization tank would take over one year to construct which would make biological treatment not viable based on the weir construction schedule, as well as high capital cost. We should ensure that we've considered all options for use of biological treatment to lower the construction cost and schedule, and determine whether biological treatment or IX is the better approach, considering the significant operating costs for IX with high TDS and sulfate in the groundwater.

Response: *The purpose of the EE/CA was to evaluate all options associated with treating the water generated from dewatering operations. Given the project constraints, IX treatment has been determined to be the only viable option.*

6. Could a recirculation system or alternative design to stabilize flowrates (including use of a smaller tank) be used to eliminate the high cost and schedule prohibitive equalization tank?

Response: *NDEP directed the Trust to assume (and design for) dewatering that will not exceed a maximum flowrate of 6,900 gpm, combined, from dewatering operations at the two weirs under simultaneous construction. The actual dewatering flows, dewatering means and methods will be dictated by weir construction contractor operations. The Trust will not be able to modify or direct the weir contractor throughout the project's implementation.*

The historic dewatering rates associated with constructing eight previous weirs indicated that it is common for there to be some zero-flow dewatering days during weir construction. Three weirs previously experienced zero days of zero-flow dewatering rates, but the remaining five weirs experienced 3 to 25 days of zero-flow rates. Additionally, the minimum non-zero flow rates at the eight previous weirs were as low as 4 gpm. At 6,900 gpm design flow, the 10,000,000 gallon equalization tank that is recommended for biological treatment provides at most one day of flow equalization. The existing biological treatment system at the NERT site operates with more than 20 days of equalization. A smaller equalization tank would not provide sufficient volume to stabilize flowrates during zero-flow or low flow conditions. The current project schedule and space requirements, including the need for secondary containment, preclude incorporating a recirculation system or alternate design to stabilize flowrates.

7. Could other downstream areas impacted by perchlorate be integrated into a biological treatment approach that (1) could provide continued flow to the treatment system when dewatering flow is at zero (eliminating need for large storage tank), and (2) have added benefit of remediating additional perchlorate impacted areas?

Response: *NERT's proposed treatment system is in response to the Order. Due to the time constraints imposed by SNWA, treatment of other potential areas is not an option. That said, NERT will certainly consider opportunities to repurpose the treatment system as part of the RI/FS process.*

8. Operationally, the NERT team's familiarity and experience with biological treatment at the site may be beneficial to the biological treatment option.

Response: *NERT concurs that the team's experience operating the existing biological treatment plant was invaluable in the EE/CA process. This expertise was used in the preparation of the EE/CA.*

9. For costing purposes, the EE/CA assumes spent resin from the IX would be disposed of through incineration. Do these costs consider possibility of increased hazardous waste disposal costs; could there potentially be low levels of radionuclides accumulated in the resin?

Response: *The Trust determined that disposal by incineration of spent resin from the IX treatment process which may contain radionuclides remains a feasible option. A subset of the incineration facilities initially identified to accept spent resin from the weir dewatering treatment accept spent resin with radionuclides. The cost differential to incinerate spent resin with radionuclides versus without radionuclides is approximately 1 to 2 percent of the incineration cost, which is well within the estimate range presented in the EE/CA (plus 50% and minus 30% of actual costs).*